

WHAT IS CLAIMED IS:

1. A control device for a front and rear wheel drive vehicle having a front wheel pair and a rear wheel pair, one of which is driven with an engine and the other one of which is driven with an electric motor, comprising:

target drive-power setting means which sets a target drive-power of said front and rear wheel drive vehicle on the basis of operating conditions thereof,

wherein the control device controls an engine drive-power and a motor drive-power on the basis of a distribution ratio, which is set in consideration of the target drive-power, a vehicle speed, and a ratio between a change in an amount of fuel consumption and a change in an amount of electric power consumption during an operation of the electric motor.

2. The control device for the front and rear wheel drive vehicle according to claim 2, further comprising:

distribution-ratio setting means which calculates

$$EF-AF)/PU$$

where

EF = the amount of fuel consumption attained when the target drive-power is achieved with the engine drive-power;

AF = the amount of fuel consumption which is predicted when the motor drive-power is added to the engine drive-power to achieve the target drive-power; and

PU = the amount of electric power consumption when the motor drive-power is added, on the basis of the target drive-power and the vehicle speed, and sets a drive-power distribution ratio between the engine drive-power and the motor drive-power in accordance with the calculated value,

wherein the control device controls the engine drive power and the motor drive power on the basis of the drive-power distribution ratio set by the distribution-ratio setting means.

3. The control device for the front and rear wheel drive vehicle according to claim 2, wherein said distribution-ratio setting means sets the drive-power distribution ratio such that the calculated value takes the maximum value.

4. The control device for the front and rear wheel drive vehicle according to claim 1, further comprising:

electric storage means adapted to be charged by an electric power generating operation of said electric motor; and

charging-mode distribution-ratio setting means which calculates

$$(GF-EF)/PC$$

Where

EF = the amount of fuel consumption attained when the target drive-power is achieved with the engine drive-power;

GF = the amount of fuel consumption which is predicted when the target drive-power is achieved while an electric power output is generated by the electric motor; and

PC = the amount of electric power charge when the electric power output is generated by the electric motor, on the basis of the target drive-power and the vehicle speed, and sets a charging-mode distribution ratio between the engine drive-power and the motor drive-power in accordance with the calculated value,

wherein the control device controls the engine drive power and the motor drive power on the basis of the charging-mode distribution ratio set by the charging-mode distribution-ratio setting means.

5. The control device for the front and rear wheel drive vehicle according to claim 4, wherein said charging-mode distribution-ratio setting means sets the charging-mode distribution ratio such that the calculated value takes the minimum value.

6. A control device for a front and rear wheel drive vehicle having a front wheel pair and a rear wheel pair, one of which is driven with an engine and the other one of which is driven with an electric motor, comprising:

sensor means for producing detection signals representative of operating conditions of said front and rear wheel drive vehicle;

target drive-power setting means for setting a target drive-power of said front and rear wheel drive vehicle in response to said detection signals;

engine drive-power setting means for setting an engine drive-power in response to said target drive-power; and

motor drive-power setting means for setting a motor drive-power in response to said target drive-power,

wherein the control device controls the engine drive-power and the motor drive-power on the basis of a distribution ratio, which is set in consideration of the target drive-power, a vehicle speed, and a ratio between a

change in an amount of fuel consumption and a change in an amount of electric power consumption during an operation of the electric motor.

7. The control device for the front and rear wheel drive vehicle according to claim 6, wherein said target drive-power setting means includes:

a target drive-power setting unit for producing a target drive-power in response to said detection signals;

a motor-assist-mode drive-power distribution-ratio setting unit for producing a motor-assist-mode drive-power distribution-ratio in response to said detection signals;  
and

an electric-power-generation-mode drive-power distribution-ratio setting unit for producing an electric-power-generation-mode drive-power distribution-ratio in response to said detection signals,

wherein said engine drive-power setting means and said motor drive-power setting means are operative to control said engine and said electric motor in response to the target drive-power, the motor-assist-mode drive-power distribution-ratio, and the electric-power-generation-mode drive-power distribution-ratio.

8. A front and rear wheel drive vehicle having a front wheel pair and a rear wheel pair comprising:

- an engine drivably coupled to one of said front and rear wheel pairs;
- an electric motor drivably coupled to the other one of said front and rear wheel pairs;
- sensor means for producing detection signals representative of operating conditions of said front and rear wheel drive vehicle;
- target drive-power setting means for setting a target drive-power of said front and rear wheel drive vehicle in response to said detection signals;
- engine drive-power setting means for setting an engine drive-power in response to said target drive-power; and
- motor drive-power setting means for setting a motor drive-power in response to said target drive-power,

wherein the engine drive-power and the motor drive-power are controlled on the basis of a distribution ratio, which is set in consideration of the target drive-power, a vehicle speed, and a ratio between a change in an amount of fuel consumption and a change in an amount of electric power consumption during an operation of the electric motor.